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| 10/661,652 | 09/12/2003 | Richard T. Knadle JR. | 022.0008 (1630) | 9349 |
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| INGRASSIA FISHER & LORENZ, P.C. 7150 E. CAMELBACK, STE. 325 SCOTTSDALE, AZ 85251 | | | DINH, TRINH VO | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2821 | |

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,652

Applicant(s)

KNADLE ET AL.

Examiner

Trinh Vo Dinh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/12/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 11 and 12 are objected to because of the following reasons:

Claim 11 has been depend on claim 12, which is not previously presented. The Examiner suggests claim 11 depending on claim 10 instead of claim 12.

Claim 12 has been depend on claim 12. Claim 12 should depend on claim 11 instead of depending on itself.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 21, 41 and 43 recite "a first parasitic element separated from said driven" which found no support in the disclosure. In contrast, in paragraph [0019] or Figs. 1-4, 7, the first parasitic element (104) being connected to the driven element (102) with a boom (108). Therefore, the claimed limitation "a first parasitic element separated from said driven element" is unclear. The Examiner suggests changing the recitation to "a first parasitic element spaced apart from said driven element".

In claims 6-7, 9-10, 13, 31-32 and 34-35, "the second parasitic element" has no antecedent basis since there is no second parasitic element previously recited in independent claims 1 and 21.

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Claims 2-5, 8, 11-12, 14-20, 22-30, 33, 36-40, 42 and 44 are rejected because of their dependencies.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-9 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang (USP 5,220,335 of record).

With respect to claims 1-6, Huang discloses a driven element (12) and a first parasitic element (14) separated from said driven element, wherein at least one of said first parasitic element and said driven element have a width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array (col. 4, lines 34-43, or col. 5, lines 3-13).

With respect to claims 2-4, Huang discloses said width is greater than about four percent (4%) of said free-space wavelength of the directional antenna array ((col. 4, lines 34-43).

With respect to claim 5, Huang discloses a second parasitic element (16) that is separated from said driven element (12), wherein said at least one of said first parasitic element, said driven element and said second parasitic element has said width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array (col. 4, lines 34-43).

With respect to claim 6, Huang discloses a plurality of parasitic elements (16, 18) in addition to said first parasitic element (14).

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With respect to claims 7-9, Huang discloses the first parasitic element (14) and a second parasitic element (16) being at least substantially in-plane elements (col. 3, lines 10-13), and the first parasitic element (14) being a reflector element and the second parasitic element (16) being a director element (col. 3, lines 10+).

With respect to claim 16, Huang discloses a balun structure (Figs. 3-4, col. 5, line 38 to col. 6, line 47).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Woodard et al (US 2003/0125725 A1).

With respect to claim 10 and 12, Huang discloses every feature of the claimed invention except the antenna elements being formed of a monolithic material as spring steel. Woodland discloses an antenna being formed of spring steel (paragraph [0091]). However, selecting a known material on the basis of its suitability for the intended uses as a matter of obvious design choice. Therefore, choosing spring steel as a material for Huang' antenna elements has been deemed obvious to one having skill in the art.

With respect to claim 11, choosing resistivity for a material has been well known in the art to achieve a desired radiating parameters such as providing optimum absorption of the emitted radiation (for Applicant's information, the teaching is found in US Patent 5,493,704, col.

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2, lines 37-46). Therefore, selecting the resistivity for monolithic material as being greater than about 0.2×10^{-6} ohms-meter would have been obvious to one having skill in the art.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Chen et al (USP 6,809,699).

Huang discloses substantially the claimed invention as noted above in claim 1. However, Huang does not suggest a plurality of apertures in the driven element and the parasitic element. Chen discloses, in Fig. 3, the antenna element (20, 30) having a plurality of apertures (60, col. 48-56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Huang's antenna elements with plurality of apertures as taught by Chen in order to reduce the electrical length of the antenna therefore improve the antenna's performances.

9. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of MacDonald, Jr. et al (USP 6,061,036).

Huang discloses every feature of the claimed invention except at least a portion of the antenna elements being covered with an elastomer. MacDonald discloses a driven element (18) and parasitic elements (26) being covered with elastomer layers (abstract). It would have been obvious to one having ordinary skill in the art to cover Huang's antenna elements with elastomer dielectric layers as taught by MacDonald. Doing so would provide the antenna elements with highly flexural characteristic so that the antenna elements can be bent without permanent deformation (as disclosed by MacDonald, col. 1, lines 54-67).

10. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of MacDonald, Jr. et al (USP 6,061,036).

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11. Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Lanzl et al (USP 6,353,406 B1).

Lanzl discloses an RFID interrogator (col. 1, line 25-30) comprising a processing module (2300), a directional antenna (2312, 2314). However, Lanzl does not suggest the antenna being an antenna array having a driven element and a first parasitic element. Huang discloses an antenna array (10) having a driven element (12) and a first parasitic element (14) separated from said driven element, wherein at least one of said first parasitic element and said driven element have a width that is greater than about one-half a percent (0.5%) of an free-space wavelength of the directional antenna array (col. 4, lines 34-43). It would have been obvious to one having ordinary skill in the art to employ Huang antenna array to Lanzl tag system in order to achieve highly directional antenna patterns and provide a low profile antenna as well.

Allowed Subjected Matter

12. Claims 17-20 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and rewritten to overcome the 112 rejection and the objection set forth in the office action.

13. Claims 21-40 and 43-44 would be allowable if rewritten to overcome the 112 rejection and the objection set forth in the office action.

14. The following is a statement of reasons for the indication of allowable subject matter:

The cited art of record fails to teach the balun structure comprising a dipole Structure, a first feed point extending from said dipole structure, and a second feed point extending from said first parasitic element as defined in claims 17, 21 and 43.

Inquiry

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Trinh Vo Dinh', followed by a long horizontal line.

*Trinh Vo Dinh
January 07, 2005*